

RF/ER-95-0102



ADMIN RECORD

**PROJECT-SPECIFIC
HEALTH & SAFETY PLAN
PCB HOT SPOT
REMOVAL PROJECT**



DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

August 1995

A-SW-002229

ROCKY FLATS PLANT**PROJECT-SPECIFIC HEALTH
AND SAFETY PLAN PCB HOT
SPOT REMOVAL PROJECT****Manual No.:****Section No.****Page:****Effective Date:****Organization:****RF/ER-95-0102****Table of Contents, R1****1 of 1****11/30/95****Environmental Restoration**

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DOCUMENT CLASSIFICATION REVIEW WAIVER
R.B. HOFFMAN, CLASSIFICATION OFFICER
JUNE 11, 1996

INFORMATION

ONLY

Document Modification Request

Print or Type all information (except signatures). Process procedures in accordance with 1-A01-PROC DEV-400, Procedure Process.

25. DMR No.

95-DMR-ERM-0183

2. Date

11/15/95

4. Document Type: ☐ Procedure ☒ Plan☐ Other

Name/Phone/Fax/Location

REBECCA HINSCH / 8509 / 4589 / TB93B

3. Existing Document Number and Revision

RF/ER-95-0102 REV. 0

5. Document Title

PROJECT - SPECIFIC HEALTH AND SAFETY PLAN PCB HOT SPOT REMOVAL PROJECT

6. Item 17. Page 8. Site

9. Proposed Modification

#1 - - ADDENDUM TO ADDRESS ADDITIONAL SAFETY CONCERNS AT 776 SITE. (TITLED: ADDENDUM #1 TO THE PROJECT-SPECIFIC...)

#2 - - ADDENDUM TO ADDRESS FURTHER SAFETY CONCERNS AT 776 SITE. (TITLED: ADDENDUM #2 TO THE ...)

11/15/95

10. Item

10a. Justification (reason for modification: EJO #, TP #, etc.)

1/2 CLARIFIES & PROVIDES ADDITIONAL HEALTH AND SAFETY REQUIREMENTS FOR 776 SITE (PCB-21).

Originator's Supervisor

11. ☒ Process☐ Do not Process (state reason in Block 10a)

(pnnv/sign/date)

WR

SPOLES/UNGS 11/15/95

12. ☒ Process (Complete Blocks 13-22)☐ Do not Process (state reason in Block 10a)

(pnnv/sign/date)

MC

BROUSSARD/11/16/95

11/16/95

13. New Document No. (if new or changed)

REV. 0

Complete either Section 14a. or 14b., as applicable. For procedures attach completed Procedure Modification Worksheet from 1-A01-PROC DEV-400.

14a. Type of Complete Modification

☒ New☒ Revision☐ One-Time-Use☐ Cancellation

14b. Changes: (check as they apply.)

☐ Intent Change☐ Editorial Correction☒ Nonintent Change☐ Regular☒ Interim Approval Requested - Needed for immediate Use (14-day wait for obtaining final approval)

Additional Attributes:

☐ Temporary☐ One-Time-Use☐ Limited Distribution15. ERM Change Control Board Required: ☐ Yes ☒ No (Applicable only to new procedures, revisions, and intent changes.)

List the reviewing disciplines in Block 16. After concurrence has been obtained (in accordance with 1-A01-PROC DEV-400), enter the name of the reviewer followed by /S/ in block 17. If the reviewer indicates no comments, the review signature constitutes concurrence. Enter the date concurrence is obtained in Block 18.

16. Organization	17. Reviewer/Concurrence	18. Date	16a. Organization	17a. Reviewer/Concurrence	18a. Date
QUALITY	Greg DiGiacomo/MS	11-15-95			
H+S	Tonya T. Sangaline/MS	11-15-95			

Assigned SME/Phone/Fax/Location

PEGGY SCHRECKENGAST / 6990 / 03059 / N/A

20. Cost Center

203

21. Charge Number

98806300

22. Requested Completion Date

11/30/95

23. Independent Safety Review Meeting and Date

N/A

N/A

25. After obtaining ALL required signatures: Responsible Manager's Approval (pnnv/sign/date) (Not required for New procedures or Revisions)

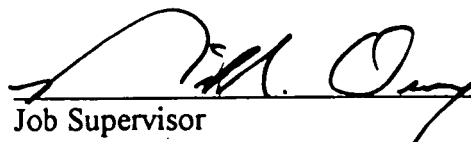
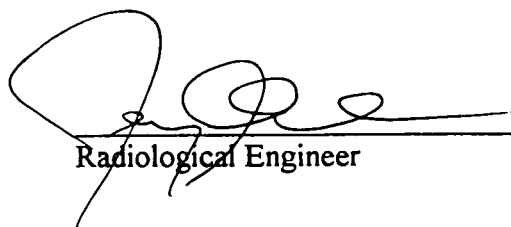
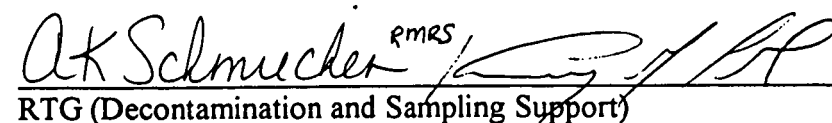
27. Effective Date

28. Expiration Date (if applicable)

PROJECT-SPECIFIC HEALTH AND SAFETY PLAN
PCB HOT SPOT REMOVAL PROJECT

August, 1995

Approval Signatures


Project Manager8-21-95
Date
Job Supervisor8-21-95
Date
Health and Safety Supervisor8-21-95
Date
Radiological Engineer8-21-95
Date
Dyncorp Transportation8/21/95
Date
RMRS Waste Management8-21-95
Date
RTG (Decontamination and Sampling Support)8/21/95
Date

PROJECT-SPECIFIC HEALTH AND SAFETY PLAN
PCB HOT SPOT REMOVAL PROJECT
August, 1995

1.0 INTRODUCTION

This Project-Specific Health and Safety Plan (HASP) provides health and safety guidance to all personnel involved in the PCB (Polychlorinated biphenyls) Hot Spot Removal Project. Before conducting hands-on work on this project or before entering the exclusion zone or contamination reduction zone, personnel must review or be briefed on this HASP and agree to abide by its provisions. All personnel must then sign the Health and Safety Briefing Form in Appendix A, which will provide a record of this training and agreement to comply with the HASP.

The goal of this project is to remove PCB-contaminated soil at eight locations at the Rocky Flats Environmental Technology Site. The scope of the project includes removal of PCB-contaminated soil, concrete transformer pads, fences, and electrical conduit, and then restoration of each site. During soil removal, soil samples will be taken and analyzed on site to determine when the area has been excavated to a "clean" level. All sampling and excavation equipment will be decontaminated on site. All waste will be managed by Rocky Mountain Remediation Services (RMRS) Waste Management personnel.

This HASP is required by the Occupational Safety and Health Administration (OSHA) construction standard for Hazardous Waste Operations and Emergency Response, 29 CFR 1926.65, and by the DOE Order for Construction Health and Safety, 5480.9A. This document may be revised with the concurrence of the Site Safety Officer, the Project Manager, and the Radiological Engineer (if applicable).

2.0 BACKGROUND

In the past, PCBs were used in dielectric fluids for electrical equipment, such as transformers. Leakage or spillage of these dielectric fluids often resulted in PCB contamination of the underlying concrete pads and surrounding soils. Previous soil sampling of sites where PCBs were suspected in the soil revealed the sites where clean-up is necessary. Eight of these sites will be cleaned up through this project. These eight sites are described in Table 2-1. The maximum amount of PCBs found in the soil is also indicated. See Figure 1-1 for site locations.

Table 2-1

SITE	DESCRIPTION	MAXIMUM PCB LEVEL
17	The transformer, located at the southeast corner of Bldg. 883, reportedly leaked PCB-contaminated oil in 1985 and 1986.	160 ppm
20	This transformer, on the south side of the 515/516 Substation was found to be leaking in 1986. Soil staining was also noted in 1986.	26 ppm
21	The transformer, which was located 100 feet west of the northwest corner of Bldg. 776, was found to be leaking in 1986. Both the concrete pad and soil were found to be contaminated with PCBs.	480 ppm
23	Prior to 1987, this transformer leaked PCB-contaminated oil onto surrounding soils. It was located on the east side of Bldg. 559. This area is located above Individual Hazardous Substance Site (IHSS) 159. The hazard presented by this IHSS is underground radiological contamination from an old broken process waste line.	190 ppm
24	Two of the four transformers previously located on the west side of Bldg. 708 were found to have leaked PCB-contaminated oil.	860 ppm
25	Concrete and soil under the drain valve for transformers located on the roof of Bldg. 707 were found to be contaminated in 1986.	1,600 ppm
26	Prior to 1987, the transformer on the west side of Bldg. 750 was reported to have leaked PCB-contaminated oils.	160 ppm
33	A small area of PCB contamination has been found on the north side of the concrete slab from transformer 371-4.	>50 ppm

This project will begin in August, 1995, and will extend through Fiscal Year 96.

Figure 1-1

DATA SOURCE:
Buildings, roads, and forests provided by
Faulkner Eng.,
EDRO Realty Firm, Inc. - 1991.
Hydrology provided by
USGS - (data unknown)

Scale = 1 : 5000
1 inch represents approximately 412.66 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD83


RMRS Rocky Mountain
 Remediation Services, L.L.C.
 Geographic Information Systems Group
 Rocky Flats Instruments Technology Site
 P.O. Box 604
 Golden, CO 80401-0604

MAP ID: 70011717

04. 1995

3.0 ACTIVITY HAZARD ANALYSIS

The following tasks will be performed during this project.

- 1) Removal of existing concrete pads
- 2) Decontamination of back hoe, sampling equipment, etc.
- 3) Removal of underground electrical conduit
- 4) Removal of fencing
- 5) Removal and containerization of PCB-contaminated soils
- 6) Layout of grids for the collection of soil samples, and soil sampling
- 7) Field analysis of soil samples
- 8) Backfill and compaction at each site
- 9) Sampling of waste containers
- 10) Waste disposal.

In this section, the task steps, associated hazards, and safety measures will be discussed.

TASK 1) REMOVAL OF EXISTING CONCRETE PADS

Five of the eight locations have old concrete transformer pads which will be removed. These pads will be demolished using a "Hydrohammer" attachment on a back hoe. This attachment resembles a large jackhammer. The hazards of this task and applicable safety measures are discussed below.

NOTE: At site #23, adjacent to Bldg. 559, radiological monitoring with a Field Instrument for the Detection of Low Energy Radiation (FIDLER) will be performed during any soil disturbance activities. If any readings above background are detected, work will be stopped and Radiological Engineering will be contacted immediately.

Uneven walking surfaces:

Take note of slopes and uneven surfaces.

Electrical shock due to contact with active lines

The OSHA standard for Electrical Safe Work Practices, 29 CFR 1910.333, and HSP 12.08, "Excavations and Trenching," specify safety precautions to be taken around utilities. The Excavation Specialist (Kaiser-Hill) will locate underground utilities before work starts. High voltage electrical lines (excepting only above ground lines encased in conduit) must be de-energized if the back hoe or other excavation equipment, or picks or pry bars are to be used within ten (10) feet of the active lines. A spotter will be present when the potential to come within ten (10) feet of these lines exists. This ten foot rule applies to both above ground (not encased in conduit) and buried high voltage or other high hazard lines. Other high hazard lines include gas and steam lines. If an above ground high voltage line is encased in conduit, work with heavy equipment may proceed in the vicinity of the line with the presence of a spotter to ensure that excavation equipment does not contact the conduit.

TASK 1) REMOVAL OF EXISTING CONCRETE PADS (Cont)

Electrical shock due to contact with active lines (Cont')

In addition, the OSHA standard for Electrical Safety, 29 CFR 1910.269, and HSP 15.05, "Maintenance Line Distribution Work," state that non current-carrying metal parts of equipment or devices, such as transformer cases and circuit breaker housings, shall be treated as energized at the highest voltage to which they are exposed, unless an inspection of the installation determines that these parts are grounded before work is performed. Plant Power personnel will provide this service. The frequency of these inspections will be determined by Plant Power.

Lockout/Tagout (LO/TO) will be used to de-energize the lines in accordance with HSP 2.08. Plant Power personnel will perform the LO/TO.

Excavation equipment, picks or pry bars cannot be used closer than three (3) feet from a low voltage (<600 Volt) active line. Hand digging with shovels only is permitted around active lines.

Flying chips of concrete during hammering:

All personnel remain at a safe distance from the operation. Personal protective equipment (PPE) will consist of hard hats, safety glasses with side shields, a face shield for personnel applying water spray(if in close proximity to the hammering operations), safety-toed over the ankle boots, and hearing protection. The back hoe operator will keep the rear cab window closed. Barrier tape or other means will be used to delineate the construction area. No nonessential personnel are to enter the area

Noise:

The hammering operation will produce a noise hazard. All personnel in the work area are required to wear hearing protection. The work area and personnel will be monitored for noise exposure by RMRS Health and Safety in accordance with HSP 7.06, "Hearing Conservation Program." Personnel with noise exposures greater than an average of 85 decibels on the A-weighted scale will be covered by the appropriate Hearing Conservation Program. When possible, the work area will be extended to prevent high noise exposure to non-project personnel.. Loitering non-project personnel should be informed if they are in a high noise area.

Concrete dust potentially containing silica and low levels of PCBs:

To the extent possible, all personnel will locate upwind. Dust will be prevented using water spray dust suppression. Due to the potential for silica in the concrete, personnel applying water spray will wear a MIE Miniram real time dust monitor. If dust levels are sustained in the breathing zone at 0.05 milligrams per cubic meter (mg/m³), the affected personnel will wear an air-purifying respirator (half-mask or full-face) equipped with High Efficiency Particulate Air (HEPA) cartridges.

TASK 1) REMOVAL OF EXISTING CONCRETE PADS (Cont')

Physical hazards associated with heavy equipment

All nonessential personnel must stay out of the work area. Both operators and project personnel must be aware of each other at all times. Maintain a safe distance from heavy equipment. Pay attention to back-up alarms.

Physical hazards associated with power tools:

A band-type saw may be used to cut rebar or conduit. In addition, at the site near Bldg. 708, the concrete pad will be cut using a diamond saw. Line managers will instruct their employees in the safe use and inspection of power tools. Inspection guidelines are included in HSP 12.10, "Hand and Portable Power Tools." All portable electric power tools must be properly grounded and guarded. PPE will include use of leather gloves. Do not contact contaminated soil with leather gloves. If contact does occur, dispose of leather gloves.

Spread of PCB contamination:

The actual area of PCB contamination will be identified using fencing, barrier tape, etc. All personnel who must walk in the area of PCB contamination must wear boot covers over their safety shoes. These boot covers will be removed using surgical gloves before exiting the area of contamination. During this task, personnel will not contact the soil except with their boots. A hand wash will be provided on site. Personnel who have worked in the contaminated area will be required to wash hands before eating, drinking, smoking or chewing. No eating, drinking, smoking or chewing will be permitted in the work area.

All parts of the back hoe which contacted contaminated soil or the concrete pad will be decontaminated by RTG personnel (including cab floor if applicable). Any tools, etc. used in the contaminated area will also be decontaminated. Plastic or other materials can be used to prevent contact of the tires to contaminated soil.

Heat stress:

Portions of this project will occur during the summer months. Heat stress monitoring will be conducted by RMRS Health and Safety using the Wet Bulb Globe Temperature (WBGT) index and the recommended Threshold Limit Values (TLVs) for heat stress.

Project personnel should drink plenty of liquids on hot days. Thirst is not a good indicator of heat stress. Drink plenty of fluids so as to avoid becoming thirsty. Watch for the signs and symptoms of heat stress, shown on the following page.

TASK 1) REMOVAL OF EXISTING CONCRETE PADS (Cont')

Heat Stress (Cont'):

- heat cramps
 - muscle spasms, and
 - pain in the hands, feet, and abdomen
- heat exhaustion
 - pale, cool, moist skin,
 - heavy sweating,
 - dizziness,
 - nausea, and
 - fainting
- heat stroke
 - red, hot, usually dry skin,
 - reduced or no perspiration,
 - nausea
 - dizziness and confusion,
 - strong, rapid pulse, and
 - coma

Cold stress:

Wear adequate insulated dry clothing when Temperature is below 40°F. RMRS Health and Safety will begin monitoring (observing) for cold stress at 40°F. The recommended TLVs for cold stress will be used. Watch for signs and symptoms of cold stress which include uncontrolled shivering, increased respiration, disorientation, lack of interest, and dilated pupils.

Summary of requirements:

PPE: hard hat, safety glasses with side shields, safety-toed boots, boot covers if walking in contaminated area, surgical gloves while removing boot covers, company-provided coveralls if applying water spray, face shield if applying water spray in close proximity to the hammering operations, hearing protection, respirator equipped with HEPA cartridges (half-mask or full-face) if dust monitor reads 0.05 mg/m³ sustained in the breathing zone, leather gloves for use of portable power tools.

Training: 40 (or 24) hour HAZWOPER [for personnel who must walk through the contaminated area]. Current respirator fit test for personnel applying water spray (if required).

Monitoring: Dust, noise, heat stress, and cold stress.

TASK 2) DECONTAMINATION OF BACK HOE, SAMPLING EQUIPMENT, ETC.

RTG personnel will be performing decontamination operations. Decontamination will be conducted on-site during field activities, and at one of the Decontamination Facilities between each cleanup site. At each site, the decontamination station will be located upwind from the contaminated area, if possible, at a safe distance, yet close enough to prevent spread of contamination. The field decontamination process often requires RTG personnel to transport equipment to and from the sampling crew. The hazards of this task and applicable safety measures are discussed below.

Uneven walking surfaces:

Use caution on slopes and uneven surfaces.

Noise:

Hammering and other back hoe operations will produce hazardous noise. See page 5 for discussion on Noise.

Dusts resulting from concrete busting operations or excavation:

An upwind location and water suppression will be used to control dust during any potentially dust generating task. Remain at a safe upwind distance during these activities.

Exposure to PCBs:

Overexposure to PCBs is unlikely on this project. During decontamination operations, exposure is more likely to be via skin contact than through inhalation of contaminated dusts.

PCBs are recognized by the National Institute for Occupational Safety and Health (NIOSH) as a potential occupational carcinogen. In animals, PCBs have caused tumors of the pituitary gland and liver, and also Leukemia. In humans, PCBs are readily absorbed through the skin. Overexposure to PCBs causes severe acne, swelling of the eyelids, burning of the eyes, excessive eye discharge, and burning and irritation of the skin and mucous membranes. Overexposure to PCBs by inhalation causes irritation of the respiratory tract. PCBs have also been known to cause reproductive effects such as abortions, still weights, and low birth weights.

During decontamination operations, inner surgical gloves and outer nitrile rubber gloves will be worn. Company-provided coveralls, a splash apron, splash shield, safety glasses with side shields, and safety-toed boots are required. A hard hat and hearing protection are required if entering an area where heavy equipment is being used. Booties are required if personnel will be walking through the contaminated area.

TASK 2) DECONTAMINATION OF BACK HOE, SAMPLING EQUIPMENT, ETC.

Spread of PCB contamination:

The purpose of the decontamination procedure is to prevent the spread of PCB contamination. ER Field Operations procedures FO.03, "General Equipment Decontamination," and FO.07, "Handling of Decontamination Water and Wash Water" will be used.

Liquinox, water, and Pipex solution will be used in the process.

The actual area of PCB contamination will be identified using fencing, barrier tape, etc. All personnel who must walk in the area of PCB contamination must wear boot covers over their safety shoes. These boot covers will be removed using surgical gloves before exiting the area of contamination. During this task, personnel will not contact the soil except with their boots. A hand wash will be provided on site. Personnel will be required to wash hands before eating, drinking, smoking or chewing. No eating, drinking, smoking or chewing will be permitted in the work area.

All decontamination stations will be set up with secondary containment. The contamination reduction zone will be protected with plastic from the contaminated area to the decontamination station.

Physical hazards associated with heavy equipment

All nonessential personnel must stay out of the work area. Both operators and project personnel must be aware of each other at all times. Maintain a safe distance from heavy equipment. Pay attention to back-up alarms.

Heat stress:

See pages 6 and 7.

Cold stress:

See page 7.

Ergonomic hazards

The decontamination process often requires continuous running and washing of equipment. Personnel should look at the operation for any changes which might improve the comfort level of decontamination personnel, such as raising the level of the decontamination station to prevent the need for bending over.

Exposure to Liquinox and Pipex solutions:

Liquinox and Pipex solutions will be used during the decontamination process. The Material Safety Data Sheets are included in Appendix B. These product are irritants to the skin and eyes. Use work practices and PPE to avoid contact with these materials.

**TASK 2) DECONTAMINATION OF BACK HOE, SAMPLING EQUIPMENT,
ETC.**

Summary of requirements:

PPE: Inner surgical gloves, outer nitrile rubber gloves, company-provided coveralls, a splash apron, splash shield, safety glasses with side shields, and safety-toed boots are required. A hard hat and hearing protection are required if entering an area where heavy equipment is being used. Booties are required if personnel will be walking through the contaminated area.

Training: 40 hour HAZWOPER, all other training required for RTG Decontamination Operations personnel.

Monitoring: Noise (if applicable), heat stress, cold stress.

TASK 3) REMOVAL OF UNDERGROUND ELECTRICAL CONDUIT

Underground electrical conduit will be removed to the extent possible. Underground electrical conduit not completely removed will be grouted. Conduit will be cut using a band-type saw. Some older conduits were constructed out of transite, which is an asbestos-containing material. If the conduit has a fibrous appearance, do not cut it. Grout it in place.

NOTE: At site #23, adjacent to Bldg. 559, radiological monitoring with a Field Instrument for the Detection of Low Energy Radiation (FIDLER) will be performed during any soil disturbance activities. If any readings above background are detected, work will be stopped and Radiological Engineering will be contacted immediately.

Uneven walking surfaces:

Take note of slopes and uneven surfaces.

Electrical shock due to contact with active lines

See pages 4 and 5.

Physical hazards associated with heavy equipment

All nonessential personnel must stay out of the work area. Both operators and project personnel must be aware of each other at all times. Maintain a safe distance from heavy equipment. Pay attention to back-up alarms.

Physical hazards associated with power tools:

A band-type saw may be used to the conduit. See page 6.

Noise:

Use of heavy equipment or power tools for this task may present a noise hazard. See the discussion on Noise on page 5.

Exposure to PCBs:

During this task, exposure to PCBs in contaminated soil is possible through skin contact. Work practices which minimize contact with the soil should be used. Personnel performing this task in the contaminated area will be required to wear company provided coveralls, safety glasses with side shields, surgical or other gloves to be disposed of (leather gloves if disposed of when leaving the contaminated area), safety-toed boots, and boot covers. A hard hat and hearing protection may be required if heavy equipment is operating nearby. Personnel performing this operation in the contaminated area will be required to shower at the end of the day. A hand wash will be provided on site. Personnel who have worked in the contaminated area will be required to wash hands before eating, drinking, smoking, or chewing. No eating, drinking, smoking or chewing will be permitted in the work area.

See page 8 for a discussion on the health effects of overexposure to PCBs

TASK 3) REMOVAL OF UNDERGROUND ELECTRICAL CONDUIT (Cont')

Spread of PCB contamination:

The actual area of PCB contamination will be identified using fencing, barrier tape, or other means. All personnel who must perform this task will wear the proper PPE as described above. Boot covers will be removed using surgical gloves before exiting the area of contamination. Both boots and gloves will be disposed of at the exit point of the contaminated area. All equipment used in the contaminated area during this task will be decontaminated.

Heat stress:

See pages 6 and 7.

Cold stress:

See page 7.

Exposure to grout dust:

Grout will be used to seal some of the conduit which cannot be removed. Granular grout is preferred over powder, due to the potential for dust exposure. If powdered grout must be used, keep the dust level as low as possible.

Exposure to asbestos:

Some of the old conduit material may be transite. Exposure to asbestos will be prevented by leaving this material alone. If the conduit appears to be made of a fibrous material, do not disturb it. Grout it in place.

Summary of requirements:

PPE: Personnel performing this task in the contaminated area will be required to wear company provided coveralls, safety glasses with side shields, surgical or other gloves to be disposed of (leather gloves if disposed of when leaving the contaminated area), safety-toed boots, and boot covers. A hard hat and hearing protection may be required if heavy equipment is operating nearby. Personnel will be required to shower at the end of the day. Operators not entering the contaminated area must wear safety glasses with side shields and safety-toed boots.

Training: 40 (or 24) hour HAZWOPER, annual Hazardous Waste Worker medical surveillance [for personnel in the contaminated area].

Monitoring: noise (if applicable), heat stress, cold stress.

TASK 4) REMOVAL OF FENCING

Fencing will be removed at several locations. The hazards of this task and applicable safety measures are discussed below.

Uneven walking surfaces:

Take note of slopes and uneven surfaces.

Noise:

If heavy equipment is to be used to remove fencing, noise may be a hazard. Please see the discussion on noise on page 5.

Physical hazards associated with heavy equipment:

See page 6 if heavy equipment will be used.

Physical hazards associated with power tools:

A band-type saw may be used to cut fence posts at ground level. See page 6.

Spread of PCB contamination:

Fencing may be located in the PCB contaminated areas. Any fencing that came into contact with PCB-contaminated soils must be disposed of appropriately. Personnel performing this task should avoid working in the contaminated area and avoid contact with contaminated fencing. Personnel working in the contaminated area will be required to wear company provided coveralls, safety glasses with side shields, surgical or other gloves to be disposed of, leather gloves for handling fencing (avoid contacting contaminated areas), safety-toed boots, and boot covers. A hard hat and hearing protection may be required if heavy equipment is operating nearby. Boot covers will be removed using surgical gloves before exiting the area of contamination. Both boots and gloves will be disposed of at the exit point of the contaminated area. A hand wash will be provided on site. Personnel will be required to wash hands before eating, drinking, smoking or chewing. No eating, drinking, smoking or chewing will be permitted in the work area.

Personnel performing this operation in the contaminated area will be required to shower at the end of the day.

Pinch points and physical hazards associated with moving fencing:

Leather gloves will be used to handle the fencing. Avoid contact with the areas which have been in contaminated soils. Watch for sharp edges and points.

Heat stress:

See pages 6 and 7.

Cold stress:

See page 7.

TASK 4) REMOVAL OF FENCING

Summary of requirements:

PPE: Personnel performing this task in the contaminated area will be required to wear company provided coveralls, safety glasses with side shields, surgical or other gloves to be disposed of, leather gloves during handling of fencing (avoid contact with contaminated areas, dispose of PCB-contaminated leather gloves), safety-toed boots, and boot covers. A hard hat and hearing protection may be required if heavy equipment is operating nearby. Personnel will be required to shower at the end of the day. Operators not entering the contaminated area must wear safety glasses with side shields and safety-toed boots.

Training: 40 (or 24) hour HAZWOPER

Monitoring: noise (if applicable), heat stress, cold stress.

TASK 5) REMOVAL AND CONTAINERIZATION OF PCB CONTAMINATED SOILS

After the old concrete pads, fencing, and conduit are removed, the PCB-contaminated soils will be removed. Soil will be removed in twelve (12) inch lifts using either hand tools or heavy equipment. The soil will be placed into waste containers provided by RMRS Waste Management. After one (1) foot of soil is removed, the underlying soil will be sampled to determine if further excavation is necessary. The hazards of this task and applicable safety measures are discussed below.

NOTE: At site #23, adjacent to Bldg. 559, radiological monitoring with a Field Instrument for the Detection of Low Energy Radiation (FIDLER) will be performed during any soil disturbance activities. If any readings above background are detected, work will be stopped and Radiological Engineering will be contacted immediately.

Uneven walking surfaces:

Take note of slopes and uneven surfaces.

Electrical shock due to contact with active lines

See pages 4 and 5.

Noise:

Use of heavy equipment may present a noise hazard. Please see the discussion on Noise on page 5.

Physical hazards associated with heavy equipment

All nonessential personnel must stay out of the work area. Both operators and project personnel must be aware of each other at all times. Maintain a safe distance from heavy equipment. Pay attention to back-up alarms.

Exposure to PCBs:

During excavation activities, personnel can be exposed to PCBs in the soil by inhaling contaminated dust or by skin contact. When heavy equipment is being used for soil removal, water spray will be used for dust suppression. The person most likely exposed to any dusts will wear a dust monitor. Because the maximum level of PCBs in soil is known, both the dust level and PCB level can be estimated using the dust monitor. At site 25, which has the highest level of PCBs in soil, the Permissible Exposure Level (PEL) for nuisance dust will be reached five (5) times before personnel reach the PEL for PCBs. If the dust monitor reads mg/m^3 sustained in the breathing zone, personnel working in the area of the excavation will wear respirators equipped with HEPA canisters. Personal breathing zone samples for PCBs will be taken at the two sites having the highest PCB soil contamination.

See page 7 for a discussion on the health effects of overexposure to PCBs.

TASK 5) REMOVAL AND CONTAINERIZATION OF PCB CONTAMINATED SOILS (Cont')

Exposure to PCBs (Cont'):

Personnel in the exclusion zone (contaminated area) will be required to wear company-provided coveralls, Tyvek coveralls if the Job Supervisor or Health and Safety Supervisor find that soil is getting on coveralls, safety glasses with side shields, hard hat (if heavy equipment is used), surgical gloves (leather gloves or other type of outer glove optional, but they must be disposed of after each site), safety-toed boots, boot covers, and hearing protection (if applicable). Minimize number of personnel which must be present in the contaminated area during excavation.

A hand wash will be provided on site. Personnel will be required to wash hands before eating, drinking, smoking or chewing. No eating, drinking, smoking or chewing will be permitted in the work area. Personnel working in the contaminated area will be required to shower before leaving plant site.

Personnel not entering the contaminated area (operators) must wear safety glasses with side shields and safety-toed boots. A hard hat and hearing protection must be worn if applicable.

Spread of PCB contamination:

It is very important to prevent the spread of PCB contamination during this task. All personnel who must walk in the contaminated area will wear booties. Personnel will not walk from the known contaminated area to a newly excavated area. However, newly excavated areas will also be treated as contaminated until proven otherwise.

All equipment used (shovels, back hoe bucket, etc.) to excavate the contaminated soil will be decontaminated between twelve (12) inch lifts. Plastic will cover ground between the contaminated area and the waste container.

Between sites, the exterior surface of the back hoe (and floor of cab if applicable) will be decontaminated.

Personnel leaving the contaminated area will remove booties, Tyvek (if used), respirator (if used) and gloves at the contamination reduction zone.

Exposure to dust

If the dust monitor shows a level of 5 milligrams per cubic meter (mg/m^3), either more dust suppression will be used, or applicable personnel will need to wear a respirator (half-mask or full-face) equipped with HEPA cartridges.

Heat stress

See pages 6 and 7.

TASK 5) REMOVAL AND CONTAINERIZATION OF PCB CONTAMINATED SOILS (Cont')

Cold stress

See page 7.

Ergonomic hazards

If hand tools are used for excavation, care must be taken to use the large muscles of the body. Avoid overusing the back and avoid twisting. Set up the work area so that work can be performed as comfortably as possible.

Entry of excavations

Excavation depths are not expected to exceed two (2) feet. However, if PCB contamination is found to be deeper than this, the requirements of the OSHA standard for Excavations, 29 CFR 1926.650 - .652, and HSP 12.08, "Excavation and Trenching" may apply. Excavations deeper than three (3) feet at Bldg. 559 require Radiological monitoring due to the underground radiological IHSS. Any excavations greater than four(4) feet deep are potentially confined spaces. If entry of confined spaces is required, all stipulations in OSHA 29 CFR 1910.146 and HSP 6.04, "Confined Space Entry," will be followed.

Undermining of present structures

If an excavation may threaten the integrity of a nearby transformer or other structure, a Registered Professional Engineer will be consulted as to the preventative measures to be taken.

Use of funnel

A large funnel may be used for transferring soil from the back hoe bucket to drums. If used, personnel should ensure that the funnel is stable on or in the drum. Personnel should stay clear of the area while soil is being transferred to the drum. If personnel must work near the funnel, they must wear the PPE specified above. Plastic will be laid out underneath the drums to catch any spilled soils.

Containerization of Soils:

The RMRS Waste Management group will be sealing and transferring drums. The Health and Safety Plan for the Waste Management group addresses these tasks. Required PPE for personnel sealing drums includes leather gloves (avoid contact with contaminated soil) company-provided coveralls, safety glasses with side shields, safety-toed boots, boot covers (if in exclusion zone or contamination reduction zone), surgical gloves to remove boot covers, and hard hat and hearing protection if applicable.

TASK 5) REMOVAL AND CONTAINERIZATION OF PCB CONTAMINATED
 SOILS (Cont')

Summary of requirements

PPE: Personnel performing this task in the contaminated area will be required to wear company provided coveralls, Tyvek if required, safety glasses with side shields, surgical or other gloves to be disposed of, leather gloves if using hand tools (to be disposed of), safety-toed boots, boot covers, hard hat and hearing protection (if applicable), respirator if dust levels reach mg/m^3 sustained in the breathing zone. Personnel will be required to shower at the end of the day. Operators not entering the contaminated area must wear safety glasses with side shields and safety-toed boots.

Training: 40 (or 24) hour HAZWOPER, medical surveillance for hazardous waste worker if working near contaminated soils, confined space training (if applicable), and current respirator fit test (if applicable).

Monitoring: dust, PCBs (at two sites), noise (if applicable), heat stress, and cold stress.

TASK 6) LAYOUT OF GRIDS FOR THE COLLECTION OF SOIL SAMPLES AND SOIL SAMPLING

After each twelve (12) inch lift, a sampling grid will be placed over the area, and the soil will be resampled. The hazards of this task and applicable safety measures are discussed below.

NOTE: At site #23, adjacent to Bldg. 559, radiological monitoring with a Field Instrument for the Detection of Low Energy Radiation (FIDLER) will be performed during any soil disturbance activities. If any readings above background are detected, work will be stopped and Radiological Engineering will be contacted immediately.

Uneven walking surfaces:

Take note of slopes and uneven surfaces.

Exposure to PCBs:

Personnel may be exposed to PCBs in the soil via skin contact. See page 8 for a discussion on the health effects of PCBs. Avoid contact with the soil. Personnel performing this task will assume all unsampled soils are contaminated until proven otherwise. PPE will include company-provided coveralls, safety glasses with side shield, surgical gloves, leather gloves optional while hammering spikes (avoid contacting leather gloves to soil, if contaminated, leather gloves will be thrown away), safety-toed boots, and booties.

A hand wash will be provided on site. Personnel will be required to wash hands before eating, drinking, smoking or chewing. No eating, drinking, smoking or chewing will be permitted in the work area.

Spread of PCB contamination:

It is very important to prevent the spread of PCB contamination during this task. All personnel who must walk in the contaminated area will wear booties. Newly excavated areas will also be treated as contaminated until proven otherwise.

All equipment used for sampling will be decontaminated between samples. Plastic will be used in the area of the contamination reduction zone. Personnel leaving the contaminated area will remove booties and gloves at the contamination reduction zone.

Heat stress

See pages 6 and 7.

Cold stress

See page 7.

TASK 6) LAYOUT OF GRIDS FOR THE COLLECTION OF SOIL SAMPLES
AND SOIL SAMPLING (Cont')

Ergonomic hazards

During gridding and sampling operations, look for ways to make the task more comfortable. These tasks involve bending and standing multiple times. A chair which can be easily decontaminated might reduce back stress. Observe the operation for modifications which will make it more comfortable

Entry of excavations

See page 17.

Summary of Requirements:

PPE: company provided coveralls, safety glasses with side shields, safety-toed boots, boot covers, surgical gloves, leather gloves optional while hammering spikes (avoid contacting leather gloves to soil, if contaminated, leather gloves will be thrown away), and booties.

Training: 40 (or 24) hour HAZWOPER, confined space entry training (if applicable)

Monitoring: heat stress, or cold stress (if applicable).

TASK 7) FIELD ANALYSIS OF SOIL SAMPLES

This task will be conducted in accordance with the ENSYS Health and Safety Plan and Hazard Communication Program for PCB sampling.

PPE will include safety glasses with side shields, surgical gloves, and safety-toed boots. Caution must be used not to spill the PCB-contaminated soils.

TASK 8) BACKFILL AND COMPACTION AT EACH SITE

This task will occur on sites which have been verified as clean. The excavations will remain open between the time that excavation is complete, and the time that confirmation sample results are obtained. The site must be properly barricaded in order to protect passersby from falling or driving into the excavation. HSP 10.01, "Physical Hazards, Barricades, and Accident Prevention Signs and Tags," provides guidance. PPE will include safety glasses with side shields, safety-toed boots, hard hat (if applicable), and hearing protection (if applicable).

TASK 9) SAMPLING OF WASTE CONTAINERS

At the completion of field work, RTG will collect, package and ship soil and liquid waste water samples from every tenth drum or waste container, unless otherwise directed by the Project Manager. This includes decontamination operations. (See discussion for Task 2). The hazards of this task and applicable safety measures are discussed below:

Exposure to PCBs:

There is a potential for exposure to PCBs in the soil and water through skin contact during sampling. Work practices which minimize contact and PPE will be used to prevent this exposure. PPE will include company provided coveralls, a rubber apron and face shield to be used when sampling liquids, safety glasses with side shields, leather gloves when opening drums, nitrile surgical gloves to be changed between soil samples, neoprene outer gloves during sampling of liquids, and safety-toed boots. See the discussion on the health effects of PCBs on page 8.

Exposure to other chemicals in the liquid waste:

The analysis of soil samples requires the use of a 100% methanol solution, a 26% N,N-Dimethylformamide solution, and a 16% sulfuric acid solution. These compounds will be disposed of in the liquid waste drum, along with larger quantities of decontamination water. Working with this quantity of these chemicals will require that an operational eye wash with a 15 minute supply be within 100 feet. It is essential for personnel to avoid contact with this fluid. PPE shall include the same as above with the addition of neoprene outer gloves. A PID will be used to monitor the breathing zone during sampling. Standing upwind, and possible use of a large fan are appropriate engineering controls. If a sustained level of 5 parts per million (ppm) is found in the breathing zone, respiratory protection must be upgraded to supplied air. Both methanol and N,N-Dimethylformamide have poor warning properties. The exposure limit for methanol is 200 ppm, and for N,N-Dimethylformamide is 10 ppm.

Symptoms of overexposure to methanol include irritation of the skin, eyes, and upper respiratory system, headache, drowsiness, dizziness, light-headedness, nausea, vomiting, visual disturbance, and blindness. Above the exposure limit, it is necessary to protect the eyes, respiratory system, and skin.

Symptoms of overexposure to N,N-Dimethylformamide include irritation of the eyes, skin, and respiratory system, nausea, vomiting, colic, liver damage, enlarged liver, high blood pressure, face flush, kidney damage, and heart damage. Above the exposure limit, it is necessary to protect the eyes, respiratory system, and skin.

Heat stress:

See pages 6 and 7.

TASK 9) SAMPLING OF WASTE CONTAINERS (Cont')

Cold stress:

See page 7.

Summary of requirements:

PPE: During sampling of soil containers, RTG personnel will wear company-provided coveralls, safety glasses with side shields, safety-toed boots, and nitrile surgical gloves to be changed between samples. Sampling of waste liquid will require the same PPE plus a rubber apron and a face shield, and outer neoprene gloves. PID monitoring will be conducted during sampling of waste liquid. A sustained value of 5ppm on the PID in the breathing zone will warrant upgrade to Level B respiratory protection. Leather gloves will be used to open and seal waste containers.

Training: 40 hour OSHA HAZWOPER, current medical surveillance for hazardous waste worker, current respirator fit for supplied air mask (as required), current training on Level B system to be used (as required).

Monitoring: with PID in breathing zone during sampling of laboratory waste liquid, heat stress, or cold stress.

TASK 10) WASTE DISPOSAL

This task will be conducted by RMRS Waste Management personnel. The Health and safety Plan for the Waste Management activities provides health and safety guidance for waste disposal.

4.0 RESPONSIBILITIES

Refer to figure 4-1, Organizational Chart. Project positions and health and safety responsibilities are discussed below.

Project Manager: Wayne Sproles

Responsible for the overall project, including implementation of the HASP and Sampling and Analysis Plan.

Provides resources necessary for completion of the project.

Has signature authority on the HASP and all other project documents.

Conducts monthly health and safety inspections to assess project health and safety and implementation of the HASP. Records shall be kept of all monthly inspections.

Has stop work authority if an imminent danger is present on the work site.

Job Supervisor: Nick Demos

Responsible for coordination of all field activities.

Supervises daily operations.

Responsible for health and safety as line supervisor.

Conducts daily health and safety inspections of the worksite to identify hazards and instances of noncompliance with the HASP. Records shall be kept of all daily inspections.

Reports any injuries, accidents, illnesses, or near miss accidents to the RMRS Health and Safety Supervisor.

Has stop work authority if an imminent danger is present on the work site.

RMRS Health and Safety Supervisor: Peggy Schreckengast

Responsible for monitoring for noise, dust, PCBs, heat stress, and cold stress as needed.

Provide assistance with health and safety as needed.

Conduct weekly health and safety inspections. Records shall be kept of all weekly inspections.

RMRS Health and Safety Supervisor (Cont'):

Peggy Schreckengast

Immediately investigate hazards for which correction is outside the scope of this project.

Investigate all injuries, accidents, illnesses, or near miss accidents.

Approve modifications to the HASP.

Has stop work authority if an imminent danger is present on the work site.

RMRS Radiological Engineer:

Jerry Anderson

Provides guidance on radiological issues

Reviews and approves HASP and any changes regarding radiological issues.

Project Personnel:

Comply with the provisions of the HASP

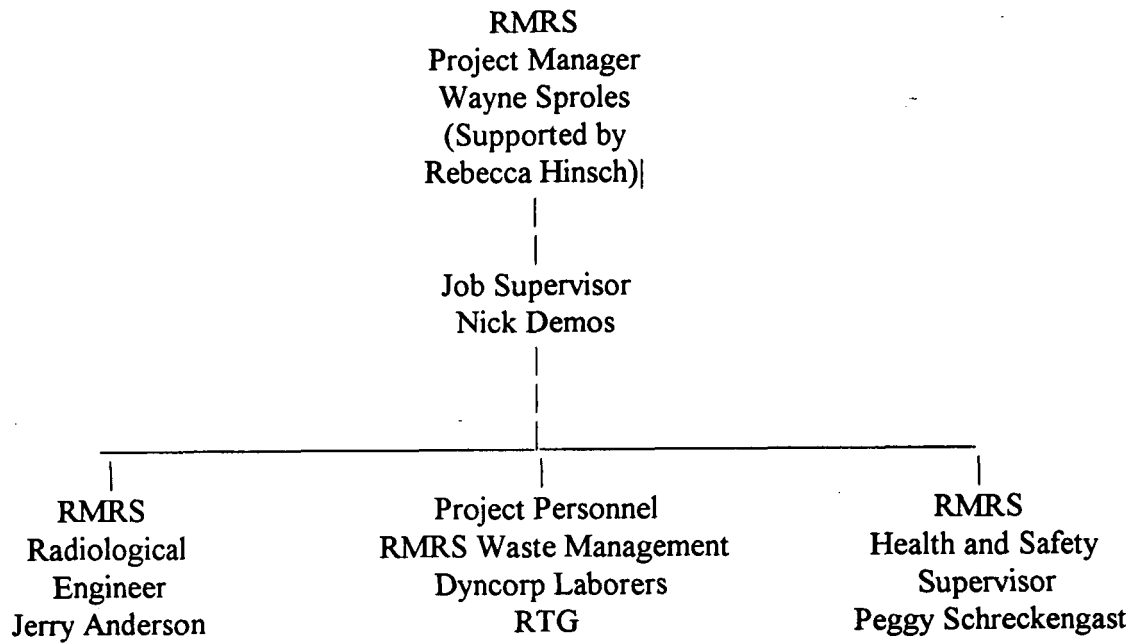
Conduct work in a safe manner.

Raise any safety concerns to the Job Supervisor.

Report any accidents, injuries, illnesses or near miss accidents to the Job Supervisor.

Figure 4-1

Project Health and Safety Organizational Chart



5.0 TRAINING

This project involves work in PCB-contaminated areas. Due to the fact that the sites are fully characterized and that exposure to PCBs above the exposure limit of 0.5 mg/m^3 is not expected, either the 24 or 40 hour HAZWOPER course is adequate for personnel working in the contaminated areas. Additional required training is listed below:

- OSHA HAZWOPER 8 hour refresher (with in the last year),
- OSHA three day OJT (to be completed after start of project),
- OSHA HAZWOPER Supervisor course for personnel supervising the hazardous waste operations,
- Current respirator fit as required during Tasks 1, 5, and 10 ,
- Current level B training for RTG sampling personnel as required for Task 9, and
- Confined space entry for personnel conducting Tasks 5 and 6, if excavations are deeper than four (4) feet.

6.0 SITE WORK ZONES

The areas of contamination will be marked using barrier tape, fencing, etc., prior to the beginning of work. Tasks 1-6 will have site zoning. The contaminated area will be the exclusion zone. This zone will be kept as small as possible. Only essential personnel and equipment will enter the exclusion zone. When working in the exclusion zone, boot covers must always be worn.

The contamination reduction zone (CRZ) is adjacent to the exclusion zone, ideally on the upwind side. This may be a large area between the clean area and contaminated area. Removal of PPE and equipment decontamination takes place in the CRZ. Where feasible, the CRZ will be lined with plastic to prevent the spread of PCB-contaminated soils.

The support zone is the project area where all other personnel are located. This area is ideally upwind of the contaminated area, but far enough away where personnel are not exposed to the safety and health hazards created by the job.

7.0 COMMUNICATIONS

Supervisory personnel will carry hand held radios. Site communication will be visual, verbal, and by radio. At tailgate safety meetings, radio numbers for supervisory personnel will be announced.

All work in the contaminated areas will require use of the buddy system.

8.0 MEDICAL SURVEILLANCE

Annual medical surveillance for hazardous waste workers will be required for those tasks where workers are more likely to be exposed to PCBs, Tasks 2, 3, 5, and 9. HSP 4.09, "Physical Examinations," details the medical surveillance program used at the site.

9.0 EMERGENCY PREPAREDNESS AND SPILL RESPONSE

In the event of an emergency, personnel shall obtain assistance by contacting extension 2911, or channel 2911 on the radio. Inform the Job Supervisor as soon as possible.

Evacuation of the site shall move from the contaminated area, by way of the CRZ if possible, and to the support zone.

Occupational Health is located in Bldg. 122. All personnel will be familiarized with the location of Bldg. 122.

Emergency equipment which will be present on site includes a first aid kit (RTG); fire extinguishers; a supply of safety glasses with side shields, disposable booties, and gloves; and a 15-minute eye wash at the location for Task 9.

The following spill response procedures will be utilized:

- HSP 21.04, "Emergency Preparedness and Spill Control," and
- 1-C49-HWRM-04, Rev 0, "Release Response and Reporting."

10.0 SAFETY MEETINGS

Each employee who will be conducting hands-on work or will be entering the exclusion zone or contamination reduction zone, will be given an initial safety and health briefing prior to performing work on the project. The briefing goes into the contents of the HASP in detail. The employees are informed of the hazards and health and safety measures to be used. Emergency procedures, reporting of illnesses and injuries, hazard communication, access to monitoring data, location of the approved HASP, and any HSPs to be followed will also be discussed. A record of this training will be maintained (Appendix A).

Weekly toolbox health and safety meetings will be held. Any safety issues or concerns will be discussed. If a new phase of work will be conducted, the portion of the HASP dealing with that task will be reviewed. A record of topics covered and personnel in attendance will be maintained.

**APPENDIX A
HEALTH AND SAFETY BRIEFING FORM**

Date _____ Time _____
Location _____
Health and Safety Officer _____

I, the undersigned, have read or been briefed on the Health and Safety Plan (HASP). I understand the contents of the HASP. I understand the hazards involved in my job and the health and safety measures to be taken to prevent accidents, injuries, and illnesses. I agree to comply with this HASP.

Verification
of 40 or 24 hour
HAZWOPER
Training

Name (Printed) _____	Signature _____	_____
Name (Printed) _____	Signature _____	_____
Name (Printed) _____	Signature _____	_____
Name (Printed) _____	Signature _____	_____
Name (Printed) _____	Signature _____	_____
Name (Printed) _____	Signature _____	_____

APPENDIX A (Cont')
HEALTH AND SAFETY BRIEFING FORM

Verification
of 40 or 24 hour
HAZWOPER
Training

Name (Printed)

Signature

Name (Printed)

Signature

Name (Printed)

Signature

Name (Printed)

Signature

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Name (Printed)

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Name (Printed)

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Name (Printed)

Signature

APPENDIX A (Cont')
HEALTH AND SAFETY BRIEFING FORM

Verification
of 40 or 24 hour
HAZWOPER
Training

Name (Printed)

Signature

Name (Printed)

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APPENDIX B
MATERIAL SAFETY DATA SHEETS

04-322-15A
04-322-15B

Material Safety Data Sheet

May be used to comply with
OSHA's Hazard Communication Standard,
29 CFR 1910.1200. Standard must be
consulted for specific requirements.

U.S. Department of Labor

Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072



IDENTITY (As Used on Label and List)

LIQUI-NOX

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

Manufacturer's Name

ALCONOX, INC.

Emergency Telephone Number

(212) 473-1300

Address (Number, Street, City, State, and ZIP Code)

215 PARK AVENUE SOUTH

Telephone Number for Information

(212) 473-1300

NEW YORK, NEW YORK 10003

Date Prepared

JANUARY 5, 1987

Signature of Preparer (optional)

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity, Common Name(s))

OSHA PEL

ACGIH TLV

Other Limits
Recommended

% (optional)

THERE ARE NO INGREDIENTS IN LIQUI-NOX WHICH APPEARED ON THE OSHA STANDARD 29 CFR 1910 SUBPART Z. ALL OF THE INGREDIENTS IN LIQUI-NOX ARE CONSIDERED TO BE PROPRIETARY INFORMATION AND WE SHALL EXERCISE THE RIGHT TO CONFIDENTIALITY AFFORDED US UNDER THE FEDERAL LAW.

Section III — Physical/Chemical Characteristics

Boiling Point	214°F	Specific Gravity (H ₂ O = 1)	1.075
Vapor Pressure (mm Hg.)	NO DATA	Melting Point	N.A.
Vapor Density (AIR = 1)	NO DATA	Evaporation Rate (Butyl Acetate = 1)	SLOWER

Solubility in Water

COMPLETELY SOLUBLE IN ALL PROPORTIONS

Appearance and Odor

YELLOW LIQUID - PRACTICALLY ODORLESS

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
NONE (CLEVELAND OPEN CUP)		N.A.	N.A.

Extinguishing Media

WATER, DRY CHEMICAL, FOAM, CO₂, SAND/EARTH

Special Fire Fighting Procedures

FOR FIRES INVOLVING THIS MATERIAL, DO NOT ENTER WITHOUT PROTECTIVE EQUIPMENT AND SELF CONTAINED BREATHING APPARATUS.

Unusual Fire and Explosion Hazards

NONE

Section V — Reactivity Data

Stability	Unstable		Conditions to Avoid	NONE
	Stable	XX		

Incompatibility (Materials to Avoid) NONE

Hazardous Decomposition or Byproducts

SO₂, MAY BE RELEASED ON BURNING

Hazardous Polymerization	May Occur		Conditions to Avoid	NONE
	Will Not Occur	XX		

Section VI — Health Hazard Data

Route(s) of Entry:	Inhalation?	NO	Skin?	YES	Ingestion?	YES
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Health Hazards (Acute and Chronic)

SKIN CONTACT MAY PROVE LOCALLY IRRITATING INGESTION MAY CAUSE DISCOMFORT AND/OR DIARRHEA.

Cardiogenicity:	NTP?	NO	IARC Monographs?	NO	OSHA Regulated?	NO
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Signs and Symptoms of Exposure

PROLONGED SKIN CONTACT MAY CAUSE DRYING AND/OR CHAPPING.

Medical Conditions Generally Aggravated by Exposure	NONE
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Emergency and First Aid Procedures

EYES - FLUSH WITH PLENTY OF WATER FOR 15 MINUTES SKIN-FLUSH WITH WATER
INGESTION - DRINK LARGE QUANTITIES OF WATER. GET MEDICAL ATTENTION FOR DIL.

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled

MATERIAL FOAMS PROFUSELY. RECOVER AS MUCH AS POSSIBLE WITH ABSORBENT MATERIAL AND RINSE REMAINDER TO SEWER, MATERIAL IS COMPLETELY BIODEGRADABLE

Waste Disposal Method

SMALL QUANTITIES MAY BE DISPOSED OF IN SEWER. LARGE QUANTITIES SHOULD BE SOAKED UP WITH ABSORBENT MATERIAL AND DISPOSED OF ACCORDING TO LOCAL ORDINANCES

Precautions to Be Taken in Handling and Storing

NON REQUIRED - VISCOSITY OF MATERIAL INCREASE AT VERY LOW TEMPERATURE.

Other Precautions

NO SPECIAL REQUIREMENTS OTHER THAN THE GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICES EMPLOYED WITH ANY INDUSTRIAL CHEMICAL.

Section VIII — Control Measures

Respiratory Protection (Specify Type)

Ventilation:	Local Exhaust	NORMAL	Special	N.A.
	Mechanical (General)	N.A.	Other	N.A.

Protective Gloves	RECOMMENDED	Eye Protection	RECOMMENDED
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Other Protective Clothing or Equipment NOT REQUIRED

Work/Hygienic Practices NO SPECIAL PRACTICES REQUIRED.

Material Safety Data Sheet

May be used to comply with
OSHA's Hazard Communication Standard,
29 CFR 1910.1200. Standard must be
consulted for specific requirements.

U.S. Department of Labor

Occupational Safety and Health Administration
(Non-Mandatory Form)

Form Approved
OMB No. 1218-0072



IDENTITY (As Used on Label and List) PIPE X

Note: Blank spaces are not permitted. If any item is not applicable, or no
information is available, the space must be marked to indicate that.

Section I

Manufacturer's Name

CHEMICAL SOLUTIONS INTERNATIONAL CORP.

Emergency Telephone Number

(713) 992-3031

Address (Number, Street, City, State, and ZIP Code)

P.O. Box 891185

Telephone Number for Information

(713) 992-3031

Houston, TX 77239

Date Prepared

Signature of Preparer (optional)

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity, Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
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PIPE X is a proprietary formulation which contains small amounts of minerals and organics.
This product should be handled accordingly.

Complies with OSHA 29 CFR XVIII-1910.1200 Section (i) "Trade Secrets". Contains no
hazardous components under current OSHA definitions.

Section III — Physical/Chemical Characteristics

Boiling Point	212°F	Specific Gravity (H ₂ O = 1)	1.06
Vapor Pressure (mm Hg.)	Same as water	Melting Point	NA
Vapor Density (AIR = 1)	Same as water	Evaporation Rate (Butyl Acetate = 1)	L1

Solubility in Water Soluble in all ratios, pH is greater than 6.4

Appearance and Odor Pink liquid with medium viscosity and synthetic cleaner odor.

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
None	NA	NA	NA

Extinguishing Media

NA

Special Fire Fighting Procedures

NA

Unusual Fire and Explosion Hazards

Section V — Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	None known.

Incompatibility (Materials to Avoid)

Strong oxidizing agents.

Hazardous Decomposition or Byproducts

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	None known.

Section VI — Health Hazard Data

Route(s) of Entry:	Nil	Inhalation?	Nil	Skin?	Nil	Ingestion?	Nil
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Health Hazards (Acute and Chronic)

EYES: will cause discomfort. SKIN: concentrate will cause chapping to sensitive skin.

INHALATION: irritation of respiratory tract. INGESTION: severe burns to gastrointestinal tract.

Cardiotoxicity:	Nil	NTP?	Nil	IARC Monographs?	Nil	OSHA Regulated?	Nil
-----------------	-----	------	-----	------------------	-----	-----------------	-----

Signs and Symptoms of Exposure

EYES: burning, redness, tearing. SKIN: redness, burns. INHALATION: coughing, dizziness, nausea. INGESTION: burns on lips, mouth.

Medical Conditions

Generally Aggravated by Exposure Consult physician. Emergency and First Aid Procedures. EYES: flush 15 minutes with water. SKIN: wash thoroughly with soap and water. INHALATION: move to fresh air. Apply artificial respiration if breathing has stopped. INGESTION: do not induce vomiting. If any irritation persists, seek medical attention.

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled

Remove leaking package to safe area. Flush with water.

Waste Disposal Method

Any approved method for dilute cleaner. Surfactants are highly biodegradable.

Precautions to Be Taken in Handling and Storing

None in normal shipment, storage or use.

Other Precautions

None in normal shipment, storage, and handling.

Section VIII — Control Measures

Respiratory Protection (Specify Type)

Ventilation	Local Exhaust	None necessary.	Special	None
	Mechanical (General)	Desirable Recommended in confined spaces	Other	None

Protective Gloves	Rubber	Eye Protection	Goggles or face shield.
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Other Protective Clothing or Equipment

Rubber slicker suits or apron. Long sleeved shirt buttoned at collar.

Work/Hygiene Practices

Wash after each shift. Remove and wash contaminated clothing before re-use.

INFORMATION

ADDENDUM #1
to the
Project-Specific Health and Safety Plan
PCB Hot Spot Removal Project
Excavation at Site #21, Bldg. 776 Transformer

Approval Signatures


Kaiser Hill Excavation Specialist

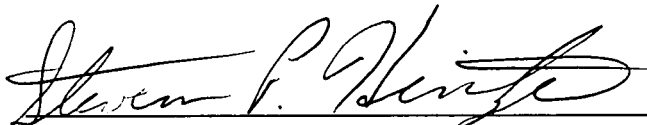
9/29/95
Date


DynCorp Plant Power

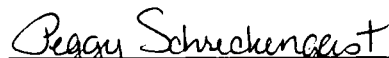
9-29-95
Date

DynCorp Utilities Health and Safety

Date


DynCorp Transportation

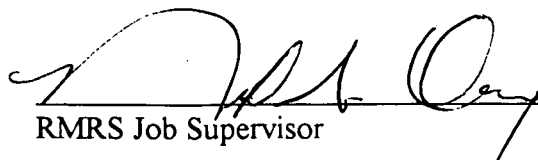
9-29-95
Date


RMRS Health and Safety

9-29-95
Date


RMRS Project Manager

9/29/95
Date


RMRS Job Supervisor

9-29-95
Date

ADDENDUM #1
to the
Project-Specific Health and Safety Plan
PCB Hot Spot Removal Project
Excavation at Site #21, Bldg. 776 Transformer

Approval Signatures

Kaiser Hill Excavation Specialist

Date

M.E. Neely
DynCorp Plant Power

9-29-95
Date

[Signature] *ESM Q*, *Dyn Hill*
DynCorp Utilities Health and Safety

9-29-95
Date

DynCorp Transportation

Date

RMRS Health and Safety

Date

RMRS Project Manager

Date

RMRS Job Supervisor

Date

ADDENDUM #1
to the
Project-Specific Health and Safety Plan
PCB Hot Spot Removal Project
Excavation at Site #21, Bldg. 776 Transformer

Site #21, near the Bldg. 776 transformer, is surrounded by many different types of utilities. The original Health and Safety Plan for this project addresses safe work near utilities, and will be followed with the exception of work near the energized line described below. This addendum will be used only for the 776 site.

This addendum describes the health and safety precautions to be taken during the excavation to prevent accidents and injuries during the work near this line. Any deviation from this addendum will require re-approval by all authorities signing the addendum. If field conditions change or unknown situations related to this addendum arise, the addendum is void. All affected project personnel will be briefed on this addendum before beginning work. If any employee working on this project is unsure about the procedures to be followed or feels that risks have not been properly addressed or controlled, this addendum will be void until actions are taken to alleviate the employee's concerns.

Background:

The utility of concern is an underground 13,800 Volt power line running from the 515/516 substation to a nearby pole. This line will not be locked and tagged out during the work. The excavation will occur over the area where this line is buried.

This line supplies power to Bldg. 771. According to the 771 Bldg. Manager, the line absolutely cannot be locked out/ tagged out (LOTO) because Bldg. 771 does not have an acceptable alternate source of power. Vital safety systems are controlled by this power line. Therefore, the risk to workers incurred by excavating near this energized line is considered to be less than the risk presented by LOTO of the line.

HSP 12.08, Excavations and Trenching, requires hand digging within ten (10) feet of such a line. The potential back strain and worker fatigue involved in hand digging this large area is a greater risk than will be taken by slowly and cautiously excavating the same area with heavy equipment.

The line was installed in six (6) inch conduit and capped with concrete mixed with red dye. The line was buried at a depth of approximately four (4) to five (5) feet. However, a roadway was constructed in the area after the line was placed, and the line depth may have changed.

The location of the line has been identified by the Kaiser Hill Excavation Specialists

Hazard:

The hazard addressed by this addendum is the striking of the energized 13,800 Volt line, which may result in electrocution and/or damage to property.

Health and Safety Measures:

- 1) All affected employees will be briefed on this addendum before work begins. All questions and concerns will be addressed to the satisfaction of the employees.
- 2) The line will be located by hand using only shovels at the point where it begins to go under the asphalt.
 - a) If the line is encased in conduit, work may proceed as described below.
 - b) If the line is "direct buried," or if gaps in the conduit are noted at any time during the excavation, the entire area (ten [10] feet around the line) will be excavated using only shovels.
- 3) Once the line is located, the back hoe will be positioned on the asphalt road, with the arm of the back hoe extended as far as possible toward the pole. This will help avoid contact with the conduit on the pole and overhead lines. The back hoe will be re-positioned when necessary to keep the arm of the back hoe extended so as not to contact these lines.
- 4) The spotter will always be present.
- 5) The operator will then begin scraping four(4) to six (6) inches of soil at a time.
- 6) All supervisors and other employees not directly involved in the operation will remain outside of the work area during this excavation.
- 7) During the excavation, shoveling or inspection may be necessary. During these times, the back hoe operation will stop until personnel have cleared the area.
- 8) Only shovels will be used to clear small amounts of soil from the top of the conduit. If at any time the concrete cover or metal conduit is compromised, work will be stopped and proper notifications will be made.
- 9) The excavation will expose the top quarter of the conduit or red concrete, along its entire length, and a minimum of one (1) horizontal foot of soil excavated to the same depth on both sides, along the entire length of the conduit.
- 10) After the conduit has been completely exposed, cones (or other suitable visual reminders) will be placed approximately every two (2) feet along the conduit.

Health and Safety Measures (Cont'):

- 11) The excavation can then proceed within the ten (10) foot area. Caution shall be used to avoid contact with the overhead lines and exposed conduit.
- 12) Once the excavation is complete, the exposed underground line shall be properly barricaded to prevent damage to the line.

Work will stop if any of the following conditions exists:

- 1) Any lines not on the attached drawing are discovered.
- 2) If the 13,800 Volt line is "direct buried" or if the conduit is damaged.
- 3) If any employee involved in this work feels like the appropriate precautions have not been taken.

INFORMATION
ADDENDUM #2
to the
Project-Specific Health and Safety Plan
PCB Hot Spot Removal Project
Excavation at Site #21, Bldg. 776 Transformer

Approval Signatures

RA LaBoul 10-11-95
Kaiser Hill Excavation Specialist Date

Mark E. Nuley 10-11-95
DynCorp Plant Power Date

DM Lund 10-11-95
DynCorp Utilities Health and Safety Date

Steven P. White 10-11-95
DynCorp Transportation Date

Peggy Schreckengost 10-11-95
RMRS Health and Safety Date

Wanda R. S. 10-11-95
RMRS Project Manager Date

[Signature] 10-11-95
RMRS Job Supervisor Date

ADDENDUM #2
to the
Project-Specific Health and Safety Plan
PCB Hot Spot Removal Project
Excavation at Site #21, Bldg. 776 Transformer

This addendum was prepared for the specific nature of the utilities at the Bldg. 776 transformer site, site #21. Addendum #1 addressed the location of and excavation around the live 13,800 Volt power line which runs through the site. Excavation is again necessary at this location. This time, no utilities will be locked out/tagged out (LO/TO). This addendum describes the health and safety precautions to be used during this second excavation to prevent accidents and injuries. Any deviation from this addendum will require re-approval by all authorities signing the addendum. If field conditions change or unknown situations related to this addendum arise, the addendum is void. All affected project personnel will be briefed on this addendum before beginning work. If any employee working on this project is unsure about the procedures to be followed or feels that risks have not been properly addressed or controlled, this addendum will be void until actions are taken to alleviate the employee's concerns.

Background:

Several utilities were buried in the area to be excavated. The Bldg. 776 transformer, which sits to the north of the excavation area, will be energized. An energized 2400 Volt line runs underground from this transformer to a nearby set of poles. The entire conduit housing this line has been exposed. An energized 13,800 Volt line runs from the poles to the transformer. The red concrete surrounding this line has been fully exposed. The energized 13,800 Volt line running from the 515/516 substation to the same set of poles runs along the south end of the excavation area. The red conduit surrounding this line has been fully exposed. The area also has an abandoned buried steam line and an abandoned telephone line.

HSP 12.08, Excavations and Trenching, requires that heavy equipment be not be used closer than ten feet to the above mentioned energized equipment. The potential back strain and worker fatigue involved in hand digging the large area around this equipment is a greater risk than will be taken by slowly and cautiously excavating the same area with heavy equipment.

Hazards:

The hazards addressed by this addendum are electrocution and/or damage to property which may be caused by striking an energized line or the energized transformer, or by working too close to energized equipment so as to cause arcing.

Health and Safety Measures:

- 1) All affected employees will be briefed on this addendum before work begins. All questions and concerns will be addressed to the satisfaction of the employees.
- 2) Three spotters will be present during use of heavy equipment within ten (10) feet of the energized transformer and the energized power lines. One of the spotters will be a DynCorp Plant Power Lineman/Electrician. The spotters will be located in positions where they can ensure that heavy equipment is always three (3) feet or more away from all energized equipment. They must also ensure that heavy equipment remains ten (10) feet away from over head power and steam lines.
- 3) All areas within three (3) feet of the energized transformer or lines will be hand excavated using shovels and picks. Picks are allowed because the conduit and red concrete are exposed.
- 4) When heavy equipment is positioned, it will be located so that the arm and bucket are fully extended toward the transformer, at a minimum three (3) foot distance from the transformer, making it impossible for the heavy equipment to strike the transformer.
- 5) All supervisors and other employees not directly involved in the operation will remain outside of the work area during this excavation.
- 6) During the excavation, shoveling or inspection may be necessary. During these times, heavy equipment operation will stop until personnel have cleared the area.

Work will stop if any of the following conditions exists:

- 1) Any lines not identified are discovered.
- 2) The energized power lines or transformer are damaged.
- 3) Any employee involved in this work feels like the appropriate precautions have not been taken.